



## Biswa Ranjan Swain, M. Tech.

**Designation** : Assistant Professor

**Department** : Department of Electronics & Communication Engg.

(JOINED THE INSTITUTE IN 15<sup>TH</sup> JANUARY 2026)

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### RESEARCH INTERESTS: Antenna Design, fabrication and Testing

- ✓ RF and Microwave Engg.
- ✓ Antenna testing, Antenna characterization in RF field
- ✓ Reconfigurable Antenna
- ✓ Multiband and Wideband Antenna
- ✓ Metamaterial and Metasurface Antennas
- ✓ MIMO and Massive MIMO Antennas
- ✓ Dielectric Resonator Antennas

### Academic Qualifications:

**Ph.D. Cont.** (Electronics and Telecommunication Engineering, Specialization: RF and Microwave Engg.), VSSUT, Burla.

**MTech.** (Electronics and Telecommunication Engineering, Specialization: Communication Engineering), IIT Kharagpur

### Teaching Experience/Research Experience: 18+ Years

- ✓ Assistant Professor in the Department of Electronics and Telecommunication Engineering in Silicon University, Bhubaneswar since 15<sup>th</sup> January 2026.
- ✓ Assistant professor (Selection Grade) in the Department of Electronics & Telecommunication Engineering in Trident Academy of Technology, Bhubaneswar from 21<sup>st</sup> April 2023 to 13<sup>th</sup> January 2026 and Assistant professor from 3<sup>rd</sup> August 2009 to 20<sup>th</sup> April 2023.
- ✓ Lecturer in the Department of Electronics & Telecommunication Engineering in College of Engineering, Bhubaneswar from 7<sup>th</sup> July 2007 to 2<sup>nd</sup> August 2009.

## PUBLICATIONS

### JOURNALS:

- [1]. B.R. Swain and A.K. Sharma "Miniaturized quad-element UWB MIMO antenna with reconfigurable X/ Ku/K-band notched performance for cognitive radio application " AEU-International Journal of Electronics and Communications, Vol-202, Pages: 156049, Sept. 2025. DOI. [10.1016/j.aeue.2025.156049](https://doi.org/10.1016/j.aeue.2025.156049)
- [2]. B.R. Swain and A.K. Sharma "Investigation of a Frequency and Polarization Tunable Monopole Antenna for 5G-Enabled Smart Street Networks" Journal of Harbin Institute of Technology (New Series), Vol-33, issue-7, Jan. 2026.
- [3]. K. Sreelakshmi, B.R. Swain, A. B. Sahoo, M. R. Jena, and R. Pathak "A Miniaturized Multiband Antenna with Frequency Reconfiguration for 5G and IoT Applications" Journal of Information System Engineering and Management. Vol-10, Pages :565-575, No-7, 2025 DOI. 10.52783/jisem.v10i7s.924

- [4]. B.R. Swain and A.K. Sharma "An investigation of dual-band dual-square ring (DSR) based microstrip antenna for WIFI/WLAN and 5G-NR wireless applications", *Progress in Electromagnetic Research M (PIER M)*, Vol-86, Pages: 17-26, Oct. 2019. [10.2528/PIERM19060501](https://doi.org/10.2528/PIERM19060501)
- [5]. B.R. Swain, A.K. Acharya and B. Swain, "Parallel Implementation of Covariance tracking with efficient Model update " *Journal of theoretical and Applied Information Technology*, Vol-95, Issue-16, Pages:3720-3727.ISSN: 1992-8645. Aug. 2017.
- [6]. B.R. Swain, S.K. Mohaptra and M. Mohanty, "Automated Epileptic Seizure detection model using WPT, CFS, and KNN based Multiclass TSVM" *International journal of Engineering and advanced Technology*. Vol.-9 No. 3 Pages:240-246, ISSN online: 2249-8958, Feb. 2020. [10.35940/ijeat.B4571.029320](https://doi.org/10.35940/ijeat.B4571.029320)
- [7]. B.R. Swain, S.K. Mohaptra, M. Mohanty and D. N. Pattanayak, "Classification of EEG signals using WPT, MGWO and Rule Based Classifier" *International journal of recent Technology and Engineering*, Vol. 8, No.5pp. 5093-5104, ISSN online: 2277-3878, Jan. 2020. [10.35940/ijrte.E7001.018520](https://doi.org/10.35940/ijrte.E7001.018520)
- [8]. B.R. Swain, S.K. Mohaptra and M. Mohanty, "A Hybrid and Automated Epileptic Seizure Detection Model using Improved PSO and Extreme Learning ANFIS network", *International Journal of Innovative Technology and Exploring Engineering*, Vol.-9, Issue-3, Pages:728-741 ISSN: 2278-3075. DOI: [10.35940/ijitee.C9126.019320](https://doi.org/10.35940/ijitee.C9126.019320)
- [9]. B.R. Swain, S.K. Mohaptra and P. Das, "Comprehensive survey of possible security issues on 4G Networks" *International Journal of Network Security & Its Applications*, Vol.-7, No-2, Pages:61-69, 2015. DOI: [10.5121/ijnsa.2015.7205](https://doi.org/10.5121/ijnsa.2015.7205)
- [10]. B.R. Swain, S.K. Mohaptra and P. Das, "A Simulation based performance evaluation of AODV, RAODV and PHRAODV Routing protocols for mobile ADHOC Networks" *International Journal of Wireless & Mobile Networks*. Vol.-6, No-5, Pages: 165-174, Oct. 2014, DOI: [10.5121/ijwmn.2014.6514](https://doi.org/10.5121/ijwmn.2014.6514)
- [11]. B.R. Swain, A. Pradhan and L. Kanoje, "FPGA based high performance CAVLC implementation for H.264 video coding" *International Journal of Computer Applications*, Vol-69, No-10. Pages: 23-28, May 2013. [10.5120/11879-7693](https://doi.org/10.5120/11879-7693)
- [12]. B.R. Swain, A. Pradhan, S.K. Mohapatra and N. Pati "Road towards Millimeter wave communication for 5G Network: A Technological overview" *Transactions on Machine Learning and Artificial Intelligence*. Vol-2, No-3, 2014. DOI: [10.14738/tmlai.23.2014](https://doi.org/10.14738/tmlai.23.2014)

#### CONFERENCES ARTICLE:

- [1] B.R. Swain, D. Samantray, K. Sathwik, K. Likhita, K. Shreya, O. Someshkhar "Optimized wideband Antenna Array with Meta surface for Next Generation 5G Networks " in 3rd International Conference on Microwave, Antenna and Communication (MAC-2025), MANIT Bhopal, M.P. India
- [2] K. Sathwik, D. Samantaray, K. Chaitanya, B. R. Swain, D. Ram and S. Bhattacharya "Optimized wideband Antenna Array with Meta surface for Next Generation 5G Networks" in 2024 IEEE Microwaves, Antennas, and Propagation Conference (MAPCON 2024), Hyderabad, India.
- [3] B.R. Swain, K. Sathwik, and D. Samantray "Efficient Metasurface Antenna Design for Compact 5G Wireless Applications" in 2024 Second International Conference on Microwave, Antenna and Communication (MAC-2024), Dehradun, India.
- [4] B.R. Swain, K. Sathwik, D. Samantray, M. Yuvaraju, N. Kumar and S. Bhattacharya "A Systematic LHCP Antenna Design Exploration for Smarter IoT Wireless Networks" In 2024 IEEE Wireless Antenna and Microwave Symposium (WAMS), Visakhapatnam, India.

- [5] B.R. Swain, and A.K. Sharma "Frequency Reconfigurable Microstrip Antenna for WLAN/WiFi wireless Applications" in 2023 IEEE 11th Region 10 Humanitarian Technology Conference (R10-HTC), Rajkot, Gujarat, India
- [6] B. R. Swain, K. Sathwik and S. Bhattaachrya, D. Samantray "A Compact High-Gain Metasurface Antenna for 5G Applications" In 2023 IEEE Microwaves, Antennas and Propagation Conference (MAPCON 2023), Wyndham Hotel Ahmedabad, Gujarat, India
- [7] B.R. Swain, K. Sasank and S. Bhattaachrya, D. Samantray, D. Ram and M. Yuvaraju "Metasurface-Integrated Flexible Antenna with Enhanced Bandwidth for Wearable IoT Devices" In 2023 8th International Conference on Computers and Devices for Communication (CODEC 2023), Calcutta University, Kolkata, India.
- [8] B.R. Swain, P.C. Satapathy, A. K. Sharma, "A Compact Fractal Antenna for ultra-wideband operation" , 2<sup>nd</sup> International Conference on Applied Electromagnetics, Signal Processing, & Communication (AESPC), KIIT University, Bhubaneswar.
- [9] B.R. Swain, A.K. Acharya, S. K. Mohapatra, S.K. Mahapatra "Multi Object Tracking using Multithreaded Parallel Approach" 2015 IEEE International conference on Electrical, Electronics, Signals, Communication and optimization (IEEE EESCO 2015), Vignan's IIT, Visakhapatnam, Andhra Pradesh, India.
- [10] B. R. Swain, S. K. Mohapatra, S.K. Mahapatra, S. Behra "A Simulation based model for Bacteria Tracking using MTP Approach in Blood" in proceedings of 4th IEEE Int. conf. on communication and Signal processing- 2015 (IEEE-ICCSP 2015), Tamilnadu, India
- [11] S.K. Mohapatra, B.R. Swain, S.K. Mahapatra, S.K. Behera. "Multimoving Bacteria and WBC Tracking using MTP Approach For proper diagnosis in Blood" 2015 IEEE Int. conf. on power, communication and information Technology conference (IEEE-PCITC 2015), SOA University India, Oct 2015.
- [12] B.R. Swain, S.K. Mohapatra "An experimental analysis of an advanced OMP algorithm for Image compression in an OSCC approach", In proceedings of the 2015 IEEE 1st Int. conf. on Electrical, Electronics, Signals, Communication and optimization (IEEE EESCO-2015) , VIIT, Andhra Pradesh, India,
- [13] B.R. Swain, S.K. Mohapatra, S.K. Mahapatra, S. Behera "Stability and Energy Aware Reverse AODV Routing protocol in MANETS", In proceedings of the 2015 IEEE 2<sup>nd</sup> Int. conf. on Recent Trends in Information Systems (IEEE-Re TIS 2015), Jadavpur University, Kolkata, India.
- [14] B.R. Swain, S.K. Mohapatra, S. K. Mahapatra "Optimised Approach of Sobel Edge Detection Technique Using Xilinx System Generator", In 2015 IEEE 2nd International conference on Electronics and Communication Systems, (IEEE ICECS 2015), Coimbatore, India.
- [15] S.K. Mohapatra, B.R. Swain, S.K. Mohapatra, S. Mohapatra "Simulation Based Algorithm for tracking Fish Population in Unconstrained Underwater", In proceedings of the 2015 International Conference on Microwave, Optical and Communication Engineering (ICMOCE-2015), IIT Bhubaneswar, India.
- [16] B.R. Swain, S.K. Mohapatra, S. Mahapatra "Simulation based algorithm for Tracking Multimoving Object using Gaussian Filtering with Lucas-Kanade Approach", In proceedings of the international conference on intelligent computing, communication and convergence (ICCC 2014) Elsevier Procedia computer Science, India.
- [17] B.R. Swain, A.K. Acharya, B. Swain "Object Tracking Using a New Statistical Multivariate Hotelling T<sup>2</sup> Approach", In proceedings of the 4TH IEEE international Advance computing conference (IACC 2014), ITM University, Gurgaon

## ANY OTHER PATENT GRANTED/PUBLISHED

### PATENTS:

- [1]. Indian Patent Published on Autonomous Data Acquisition And Logging System With Hydrophone Application, Reference number-202331016760, Award date-24/3/23.
- [2]. UK Design Patent Grant on Compact Reconfigurable UWB Filtenna for cognitive Radio Applications" Application Number-6366651, Award date-23/5/2024.
- [3]. Indian Patent published on AI-Powered Multilingual News Summarizer with Sentiment Analysis, Text to speech, and Video, Application number-2025310483322, Award Date-23/5/25.
- [4]. Indian Patent published on AI-Based Night Vision System for wrong way Driving and Lane Violation Detection, Application Number-202531042875, Award date- 9/5/25.
- [5]. Indian Design Patent Grant on Reconfigurable Octaband Antenna for Wireless Portable System, Application Number-461147-001, 3/6/25.
- [6]. Indian Design Patent Grant on MIMO Multiband Antenna for 5G Applications, Application Number-466407-001, Award date- 19/7/25
- [7]. Filed Indian Patent on A Compact Quad-Band MIMO Antenna system for wireless applications.

## ACHIEVEMENT

- [1]. Qualified GATE-2007 Examination.
- [2]. Reviewer for SCI-indexed journals including *Superconductor Science and Technology*, *Progress in Electromagnetics Research (PIER)*, and reviewer for international conferences such as *IEEE R10 Humanitarian Technology Conference (R10HTC 2023)*, *ICCAN-2017...*
- [3]. Program Committee Member, *International Conference on Computing, Analytics and Networking (ICCAN 2017)*
- [4]. Elite+Silver Certified on NPTEL Basic Electronics course from IIT Bombay.

## MEMBERSHIP OF PROFESSIONAL SOCIETIES

[1] IETE

[2] ISTE